



A STUDY OF LEARNING STYLES AND ACHIEVEMENT IN BIOLOGICAL SCIENCE AMONG SECONDARY SCHOOL STUDENTS

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ABSTRACT

Learning styles refers to the ability of an individual to learn through various approaches or ways of learning. The learning style preferences of the students reclassified in to visual (V), aural (A), Read-write (R), and kinesthetic (K). The present study analyses the correlation of the different learning styles on the achievement in biological science, among secondary school students in Tumakuru educational district in Karnataka state with a sample size of 375 students. Stratified random sampling technique was used. Learning styles and Biological science achievement test questionnaire were used. The statistical technique used was Karl Pearson's coefficient of correlation and t-test. Findings of the study reveal that, Visual learning styles were found to have significant relationship in the achievement than the other learning styles and there exist positive high correlation between the visual learning styles and achievement.

KEYWORDS: Learning Styles, Achievement in Biological Science and Secondary School Students.

PROLOGUE

The students' learning styles refers to the independent forms or ways students receive and process information. It implies that the student's skills and preferences in receiving and processing information differ. The learning styles exhibited by students depend on two major factors namely:

- The way students perceive information
- The way they process information.

When learning styles are recognized and accounted for, learning becomes a life-long journey not one that stops after we have left school. This is because we develop a thirst of knowledge because the quest for it was fruitful and painless to begin with. This encourages a further quest and an unquenchable thirst when one's learning styles are not met; we tend to feel we are incompetent and stupid, when in actual fact we simply need an alternative medium of interaction. On the other hand, when our learning styles are not met, we tend to feel that the lack of knowledge acquisition is through a fault of ours. We blame ourselves and in fact our ability to process information. This creates a premature impediment to our knowledge acquisition. This study was set out to determine the factors that enhance students' learning styles in order to facilitate students' achievement in biology.

OBJECTIVES OF THE STUDY

1. To study whether there is any relationship between learning style and achievement in biological science of secondary school students.
2. To study whether there is any difference between male and female in their learning styles.
3. To study whether there is any relationship between different learning styles of male & female secondary school students in their achievement in biological science.

HYPOTHESES OF THE STUDY

1. There is no significant relationship between learning styles and achievement of secondary school students.
2. There is no significant relationship between male and female secondary school students with reference to their Learning styles.
3. There is no significant relationship between different learning styles of male & female secondary school students in their achievement in biological science.

METHODOLOGY

The study was conducted on sample of 375 secondary school students through stratified random sampling technique from various schools of Tumakuru educational district in Karnataka state. After selecting the Sample, the Flemings VARK learning style was used as base and the Learning styles scale and achievement in biological science scale were constructed and used by the investigators to identify

the preferred learning style of students. On the basis of learning style, students were divided in to four groups Visual (V), Auditory (A), Read & write (R) and Kinesthetic (K) learners. Achievement will be measured on the basis of the marks scored. The correlation between achievement and learning style was determined using Karl Pearson's product moment co-efficient of correlation method and test of significance of difference between means of large independent sample t-test.

It is observed that a positive relationship is found between achievement in biological science and learning styles among IX standard students. The value is tested for its significance using 'r'. The 'r' value 0.746 is found to be significant at 0.01 level of significance. It is positively high correlation. Therefore the null hypothesis is rejected. Hence, it is inferred that there is a significant relationship between learning styles and achievement in biological science among the students of IX standard. Thus it is concluded that learning styles and achievement in biological science are positively related.

It is observed that the mean difference between the male and female is found to be 2.61. This value is tested for its significance using t-test. The t-value 0.67 is found to be not significant at 0.01 level of significance. Therefore the null hypothesis is accepted. Hence it is inferred that there is no significant difference in learning styles of male and female students of IX standard.

It is observed that the mean difference between the male and female students found to be 2.61. This value is tested for its significance using t-test. The obtained t-value 0.730 is found to be not significant at 0.01 level of significance. Therefore the null hypothesis is accepted. Hence it is inferred that there is no significant difference in the different learning styles of male and female students and their achievement in Biological science.

It is observed that the numbers of visual learners are more than auditory, read & write and Kinesthetic learners. It means visual learning style is more preferred among IX standard students.

It is also observed that, calculated 'r' for visual learner is (M-r= 0.789) & (F-r=0.792). It means there exist positive high correlation between visual learners and achievement in biological science. The value of calculated 'r' for auditory learners is (M-r=0.388) & (F-r=0.311). Therefore there exist a definite relationship between auditory learners and achievement in biological science. The value of calculated 'r' for read & write learners is (M-r=0.215) & (F-r=0.288). Therefore there exist a low relationship between read & write learners and achievement in biological science. The value of calculated 'r' for Kinesthetic learners is (M-r=0.438) & (F-r=0.457). Therefore there exist a substantial correlation between Kinesthetic learning style and achievement in biological science.

The correlation study of male and female students in the present study was done by selecting 195 male and 180 female secondary school students for the variable achievement in biological science. The data and results represents that there is no significant difference between male and female secondary school students' learning styles with regard to achievement in biological science.

SUMMARY OF THE RESEARCH FINDINGS

The study between learning styles and achievement in biological science among secondary school students has shown the following findings:

Objective 1: To study whether there is any relation between learning styles and achievement in biological science of secondary school students.

The results of the present study depicts that a positive relationship is found between achievement in biological science and learning styles among IX standard students. The value is tested for its significance using 'r'. The 'r' value 0.746 is found to be significant at 0.01 level of significance. It is positively very high correlation. Thus it is concluded that learning styles and achievement in biological science are positively related. However the result of different studies may differ such as the one's mentioned below.

Abdin, et al. (2011) who found that there was no significant difference in learning style preference among high and low achieving groups of students. These findings are contrary to present study.

2. To study whether there is any difference between male and female in their learning styles. The result of the present study is consistent with Thambusamy (2002) and Syed Jamal Abdul Nasir (2006) who also found that the learning styles were not significantly different between male and female students. In the finding of the present study, it is observed that the mean difference between the male and female is found to be 2.61. This value is tested for its significance using t-test. The t-value 0.67 is found to be not significant at 0.01 level of significance. Hence it is inferred that there is no significant difference in learning styles of male and female students of IX standard.

3. To study whether there is any relationship between different learning styles of male & female secondary school students in their achievement in biological science.

In the present study, findings of the results depicts that calculated 'r' for visual learner is ($M-r=0.789$) & ($F-r=0.792$). It means there exist positive high correlation between visual learners and achievement in biological science. The value of calculated 'r' for auditory learners is ($M-r=0.388$) & ($F-r=0.311$). Therefore there exist a definite relationship between auditory learners and achievement in biological science. The value of calculated 'r' for read & write learners is ($M-r=0.215$) & ($F-r=0.288$). Therefore there exist a low relationship between read & write learners and achievement in biological science. The value of calculated 'r' for Kinesthetic learners is ($M-r=0.438$) & ($F-r=0.457$). Therefore there exist a substantial correlation between Kinesthetic learning style and achievement in biological science.

Vaishnav and Chirayu (2013) in their study on learning styles and academic achievement found that the kinesthetic learners were the majority.

According to Dunn and Dunn (1986), multi-style learners tend to achieve more and score better than learners with one or two learning styles. As such, it is inferred that learning styles do make an impact on the students' overall academic achievement. Such finding highlights the importance of recognizing students' varying learning styles.

Educational Implications

Measures should be taken up to improve for better learning of secondary schools students by providing adequate and innovative infrastructure for academic to enable the students to acquire some abilities which improve their academic achievement. It is very important to arrange training for both teachers and students by using new strategies or approaches of learning. The text books must be prepared with still more various learning materials which can bring diversity in the classroom by employing visual, auditory, read & write and kinesthetic materials such as use of technology and students project writing and presentation among other methods. It indicates that most of the secondary school students preferred to learn through visual format i.e. Use videos or documentaries for research, Draw graphs, charts, pictures, and maps in your notes to increase retention, Highlight facts, main ideas, themes with different colours. Flash cards are useful to study vocabulary, formulas, dates, names, etc. Visualize what you read or illustrate what you've read.

CONCLUSION

The findings of the present study reveals that the most preferred learning style among IX standard secondary school students is Visual style of learning (36.0%) followed by auditory (20.8%), read & write (17.6%) and Kinesthetic (25.6%) learning styles. This result is contradictory to the traditional belief that students mostly learn by activity or 'Learning by Doing'. The findings of the study revealed that, secondary school students preferred to learn through visuals. They crave to learn by notes, charts, maps, graphs, films, videos etc. as they have strong sense of visualization, colour, pictures, diagrams etc. Therefore, visual Learners are more benefited in traditional classroom at secondary level. Learning style and achievement in biological science plays a significant role for all-round development of students. The syllabus and assignments should be framed according to the interest, abilities, attitudes, needs and desires of the students.

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